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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/033,656	12/27/2001	Weimin Li	MICRON.076DVI	7957

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EXAMINER

Brophy, Jamie Lynn

ART UNIT PAPER NUMBER

2822

DATE MAILED: 09/13/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/033,656

Applicant(s)

LI, WEIMIN

Examiner

J. L. Brophy

Art Unit

2822

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 December 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 April 2002 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

This office action is in response to the application papers filed 12/27/01.

Drawings

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference character "30" has been used to designate both the second metal layer (Fig. 15) and the gate electrode (Fig. 16). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in-

(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or

(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

Claims 1-7 are rejected under 35 U.S.C. 102(e) as being anticipated by Yau et al (6,072,227).

Yau et al teach an IC comprising a first conductive element 526 providing a first electrical path of the circuit;

A second conductive element 526 providing a second electrical path of the circuit; and

A unitary insulating layer 510, 514, 518 directly contacting and sandwiched between the first and second conductive elements 526, the insulating layer comprising polysiloxane incorporating carbon therein and having a dielectric constant of less than about 3.2 (col. 5, lines 40-41),

Wherein the insulating layer has a carbon content of between about 5% and 20% relative to a silicon content (col. 5, lines 38-39), and

Wherein the conductive elements 526 comprise metal runners.

See, for example Fig. 8H and accompanying text.

Claims 1 and 2 are rejected under 35 U.S.C. 102(e) as being anticipated by Maeda et al (5,800,877).

Maeda et al teach an insulating material formed between conductive elements in an IC, comprising a polysiloxane network incorporating carbon-silicon bonding and having a dielectric constant of less than about 3.2 (col. 6, lines 25-26).

See col. 2, line 45 through col. 3, line 10.

Claim 5 is rejected under 35 U.S.C. 102(b) as being anticipated by Nishiyama et al (5,429,995).

Nishiyama et al teach an IC comprising a first conductive element 23 providing a first electrical path of the circuit;

A second conductive element 25 providing a second electrical path of the circuit;
and

A unitary insulating layer 22, 24, 26 directly contacting and sandwiched between the first 23 and second 25 conductive elements, the insulating layer comprising polysiloxane incorporating carbon therein and having a dielectric constant of less than about 3.5 (col. 7, lines 29-31).

See Fig. 2C and col. 5, line 55 through col. 7, line 47.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 4-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maeda et al in view of Gardner et al (5,869,379).

Maeda et al teach an insulating material formed between conductive elements in an IC, comprising a polysiloxane network incorporating carbon-silicon bonding and having a dielectric constant of less than about 3.2 (col. 6, lines 25-26). See col. 2, line 45 through col. 3, line 10.

However, Maeda et al do not specifically teach that the conductive elements are metal runners, transistor active areas or a transistor gate electrode and a contact to a transistor active area.

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Gardner et al teach that fluorine-containing silicon dioxide can be used in place of silicon dioxide as an interlevel dielectric and as a sidewall spacer.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to use the fluorine-containing silicon dioxide taught by Maeda et al as a sidewall spacers or and interlevel dielectric in order to reduce capacitive coupling (see Gardner et al, col. 1, line 60 through col. 2, line 21).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to J. L. Brophy whose telephone number is (703) 308-6182. The examiner can normally be reached on M-F (8:00-5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carl Whitehead, Jr. can be reached on (703) 308-4940. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-3432 for regular communications and (703) 308-7382 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

J.L.B.

jlb

September 6, 2002

Carl Whitehead, Jr.
CARL WHITEHEAD, JR.
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800